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International Conference on Coastal and Delta Areas
ICCDA #5
HYBRID CONFERENCE
(Offline & Online)

CERTIFICATE

of Participation

Certificate Number:35/ICCDA5/X/2023

This is to Certify that

Darmadi

Has Participated

in

The 5th International Conference on Coastal and Delta Areas (ICCDA#5)

on October 19-20th 2023

UNIVERSITAS ISLAM SULTAN AGUNG
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Ir. H. Rachmat Mudiyono, MT., Ph.D
Dean of Engineering Faculty, UNISSULA

International Conference on Coastal and Delta Areas
ICCDA #5

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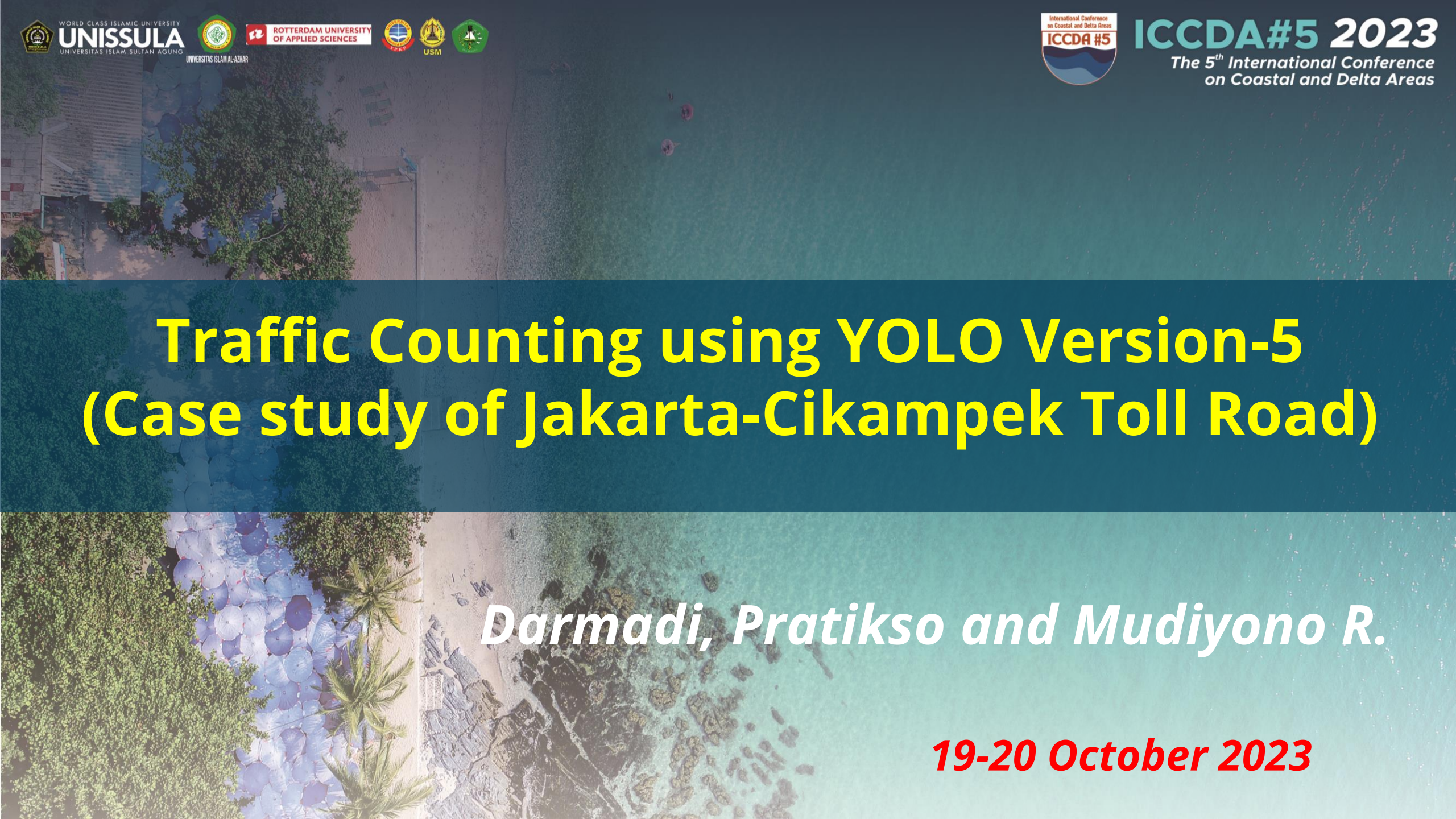
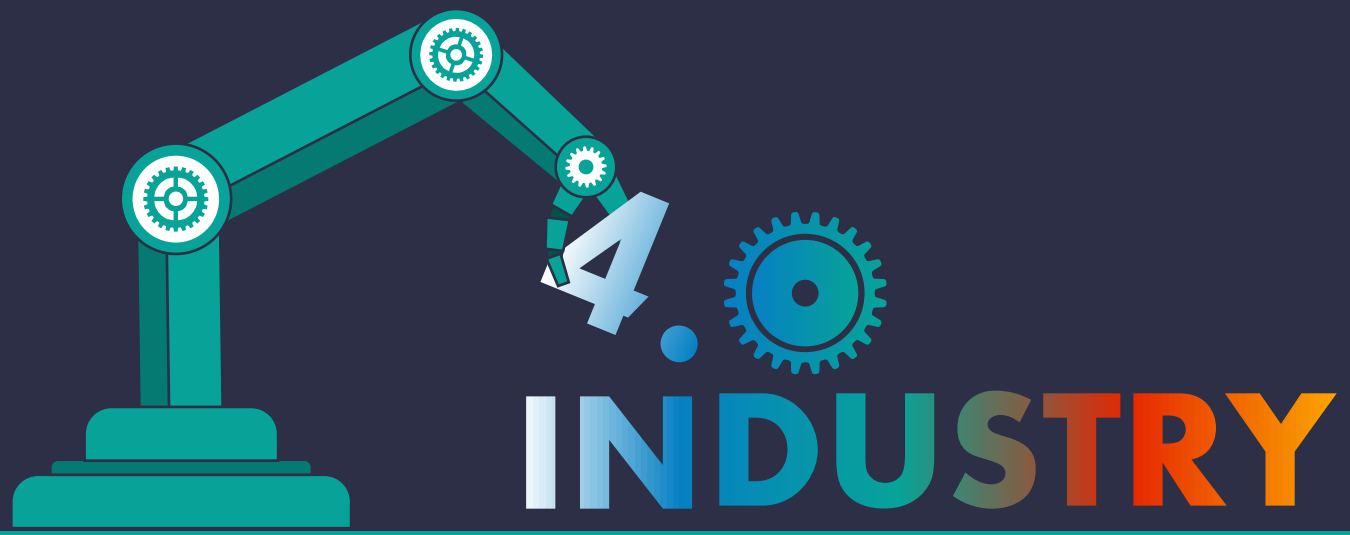


Traffic Counting using YOLO Version-5 (Case study of Jakarta-Cikampek Toll Road)

Darmadi, Pratikso and Mudiyono R.

19-20 October 2023



INTRODUCTION

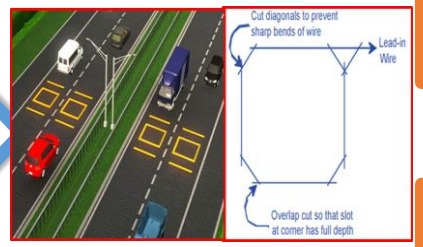
Introduction

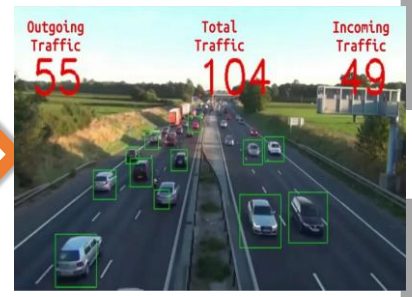
a. Information and computing technology is currently developing very quickly according to Industrial Era 4.0,

b. After introducing artificial intelligence and machine learning, which include deep learning techniques, Python, Deepsort, TensorFlow, YOLO verion 5 (You Only Look One), digital traffic volume calculations will be more easier

c. What is the level of accuracy of digital traffic volume measurements with YOLO v5

Introduction-contd





1st

ORDINARY METHOD

Traffic volume calculations are carried out by placing surveyor to direct records in the field

2nd

Now

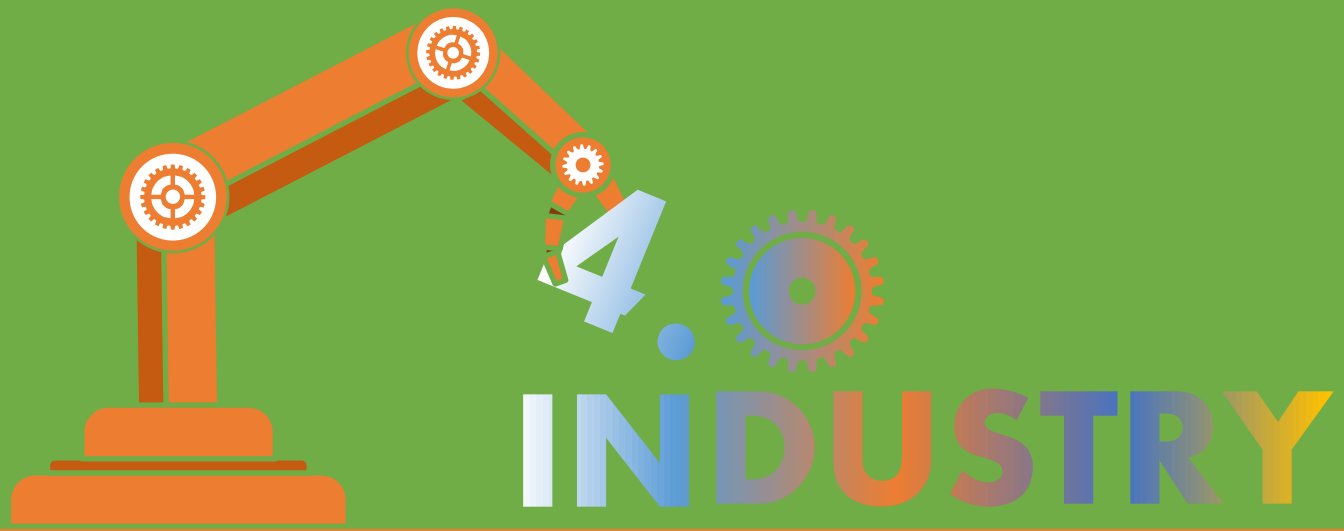
A detection loop is a device used to register vehicles (to detect the presence of a vehicle) and to count vehicles (to determine traffic volumes)

3th

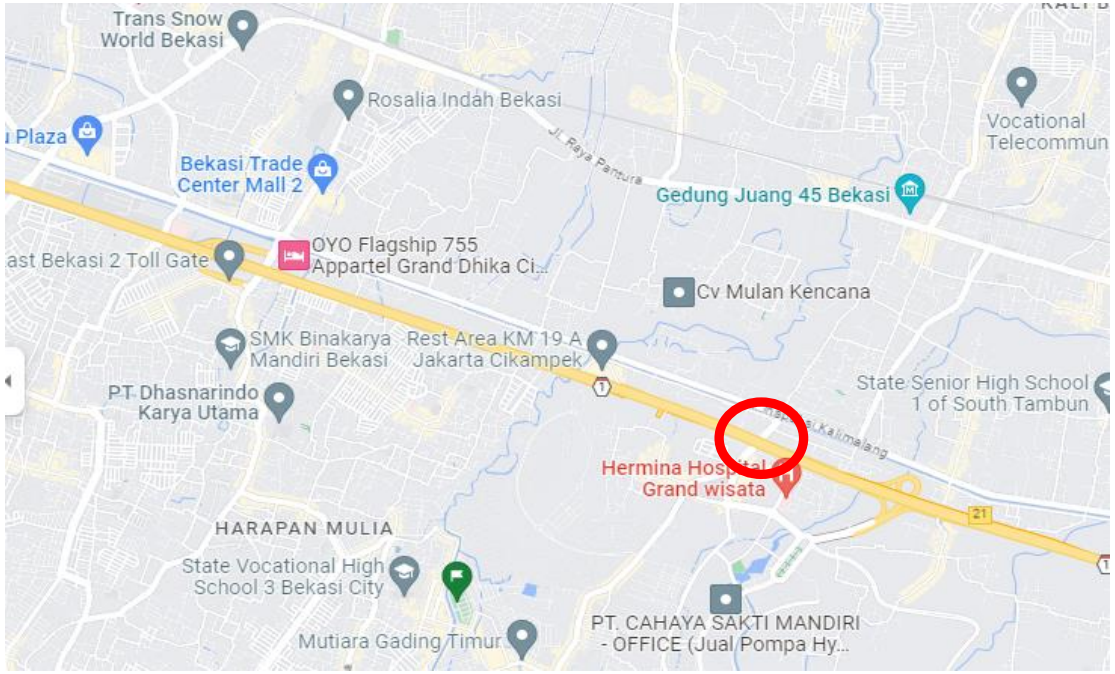
FUTURE

With the help of Artificial Intelligence)
, especially YOLOV5 allows calculating traffic volumes more quickly, time and cost efficiently.

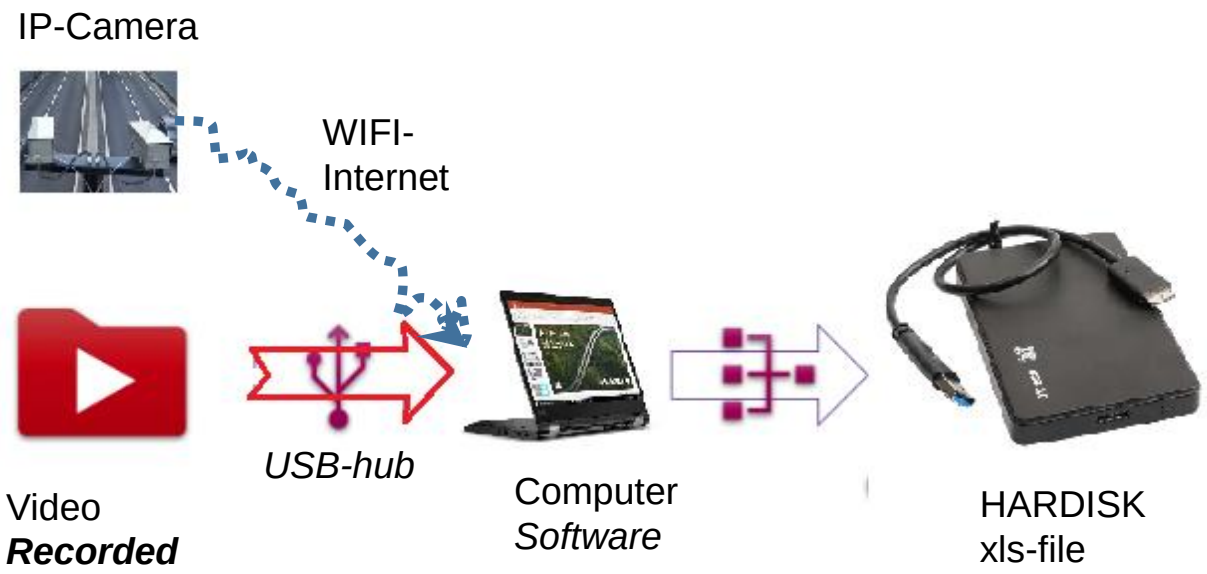

Date: 2015-10-01 Time: 09:43:53 Direction: North
Speed WheelBase Gap Axles Groups Class Visualisation
63.75 2.92 28.1 2 1 1 SV o o



RESEARCH METHOD



Location survey and camera position



METHOD

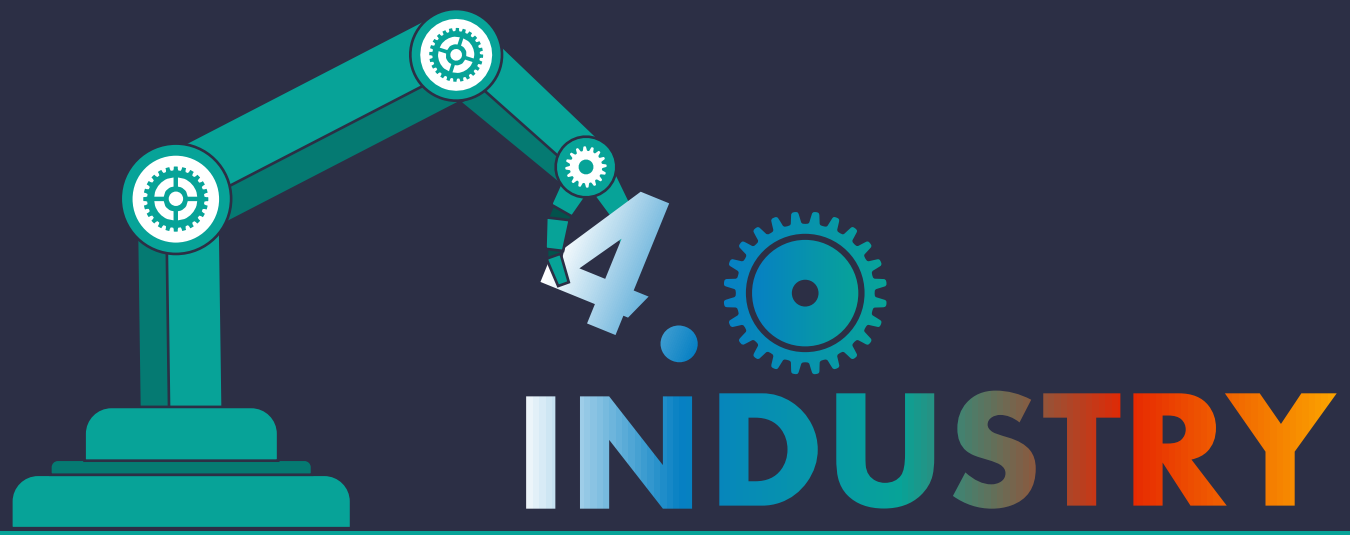
Data Video are collected in the field and the results are processed using YOLO in the office

INSTRUMENT

The instruments used are a mobile phone camera with a minimum resolution of 1200 pixels, a 128 GB memory card, an umbrella, a computer, a portable hard disk..

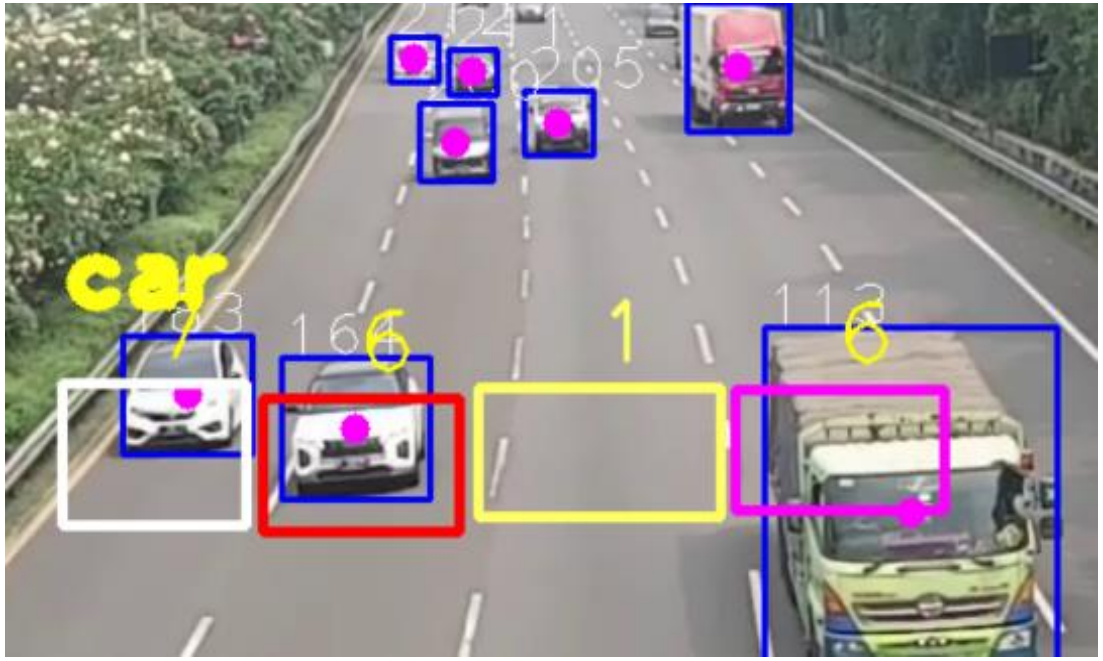
```
model = torch.hub.load('ultralytics/yolov5', 'yolov5s', pretrained=True)
cap=cv2.VideoCapture('highway.mp4')
count=0
tracker = Tracker()
while True:
    ret,frame=cap.read()
    if not ret:
        break
    count += 1
    if count % 3 != 0:
        continue
    frame=cv2.resize(frame,(1020,600))
    results=model(frame)
    results.pandas().xyxy[0]
```

Instrument and Data Analysis



RESULT and DISCUSSION

Data Analysis



DATA ANALYSIS

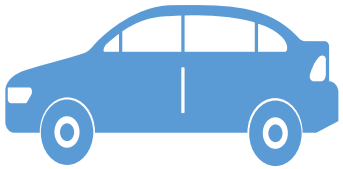
The analysis is carried out by software Python, Open CV and YOLO-V5 so that data on cars, buses and trucks will be obtained which is stored in excel format which can then be processed.

RESULT

Time			Direct Calculations			YOLO V5 Calculations			Accuracy		
Hour	Min from	Min to	CAR	BUS	TRUCK	CAR	BUS	TRUCK	CAR	BUS	TRUCK
07.00	0	15	321	65	6	304	61	5	95%	94%	83%
	15	30	256	15	8	238	14	7	93%	93%	88%
	30	45	255	44	6	241	41	6	95%	93%	100%
	45	60	305	28	10	293	27	9	96%	96%	90%
08.00	0	15	258	24	7	246	23	7	95%	96%	100%
	15	30	285	29	6	265	27	6	93%	93%	100%
	30	45	331	31	9	315	29	8	95%	94%	89%
	45	60	201	19	3	191	18	3	95%	95%	100%

CONCLUSSION

01



CARI

Accuracy results of passenger car volume measurements is 95%

02

Bus

Accuracy results of bus volume measurements is 93%

03

Truck

Accuracy results of truck volume measurements is 97%.

thank you!